REMARKS/ARGUMENTS

Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Claims 1-5 and 7-12 remain pending and favorable reconsideration is respectfully requested for at least the following reasons.

Claims 1-5 and 7-12 are rejected under 35 U.S.C. 103(a) as unpatentable over Minghetti *et al* (US 5,705,552 or WO 96/26238) (may be referred to collectively, hereafter, as "Minghetti"); and claims 1-5, 7, 8 and 10 are separately rejected under 35 U.S.C. 103(a) as obvious over Kawase *et al* (US 5,753,362) (hereafter may be referred to as "Kawase") alone or in view of Minghetti.

Applicants respectfully disagree and request reconsideration of these rejections.

Product claims 1-5, 7-8 and 10

With regard to Minghetti, the Examiner errs by equating CAB-O-SIL M5, to the colloidal dispersion of, e.g., silica oxide, according to the present claims. As will be explained below, those of ordinary skill in the art differntiate between colloidal silica as used herein and fumed silica as disclosed by Minghetti.

It is respectfully pointed out that CAB-O-SIL is a fumed silica which is materially different in physical form, and function than a colloidal silica, such as the HIGHLINK™ OG 100-30, used in examples of the application.

The thickening agent or thixotropic agent contemplated by Minghetti is a fumed silica (*see, e.g.,* column 4, lines 23-27). Fumed silica is made by high temperature treatment of a particular crystal form of silica followed by cooling. The product is glassy, not porous. Fumed silica particles are ground particles from fumed silica. As described by Minghetti at column 4, lines 27-30, fumed silica is the product formed by the hydrolysis of silicon tetrachloride vapor in a flame of hydrogen and oxygen, to produce solid particles in the range of about 7 to 30 millimicrons. See also in this regard, the attached article, "Membrane Filtration of Colloidal Silica," from New Logic Research on the product V*SEP (available at www.vsep.com/pdf/colloidsilica.pdf).

Fumed silica, absent treatment of its surface will agglomerate or form chains and settle and is not maintained as a colloidal dispersion. See, for example, the enclosed article,

"Overview: Fumed Metal Oxides" from Cabot Corp (available at http://w1.cabot-corp.com/controller.jsp?N=23+4294967082+1001&entry=product) (published 1995-2003).

Colloidal silica, on the other hand, is generally prepared by high temperature treatment of silica with sodium carbonate followed by acid treatment to produce a porous gel like substance.

In general, the Examiner is referred to the enclosed pages 1013-1014 and 1017-28 from Volume 21 of Kirk-Othmer, *Encyclopedia of Chemical Technology*, Fourth Edition, (Wiley-Interscience Publication, John Wiley& Sons) (1997).

Table 1 on page 1013 lists properties of various types of commercial amorphous silicas and lists "Colloidal silica" as one class whereas pyrogenic silica, which includes fumed silica is a separate class, notwithstanding an overlap in the ultimate particle size ranges. Table 2 on page 1021 lists the principal manufacturers of silica products and notes, for example, the Cabot Corp. is a manufacturer of fumed silica, whereas other companies are manufacturers of colloidal silica.

Silica sols and colloidal silicas are described on pages 1017 to 1020; silica gels are described on page 1020 to page 1023; precipitated silica is described on page 1023 to page 1025. Pyrogenic silica is described on page 1026 to page 1027 and on page 1026, under "**Properties**" notes that "Amorphous pyrogenic (fumed) silicas are fluffy white powders"

Therefore, it is respectfully submitted that one skilled in the art, reading the disclosure of Minghetti would not conclude that this disclosure is in any way suggestive of the products of the present invention. The practitioner would not use or expect fumed silica, known for its thixotropic properties to be interchangeable with colloidal silica, known for its binding properties and, when used as a coating, for providing abrasion resistance.

The practitioner of ordinary skill, aware of the disclosure by Minghetti, would not have been led to the present invention and would not have expected that incorporating colloidal metal oxides, including colloidal silica, into an acrylic polymer system, would provide an anti-abrasive surface effect while at the same time not detrimentally affecting the transparency of the product.

Accordingly, the disclosure by Minghetti does not make the present invention obvious and withdrawal of this rejection is respectfully requested.

The disclosure by Kawase is similarly deficient with respect to making obvious the products according to the present invention.

All that is disclosed by Kawase is that the acrylic sheet of the patentee's invention may optionally include an inorganic filler, usually with a mean diameter of less than 1 micron, preferably 0.02 to 0.08 micron. This is not a disclosure of colloidal silica since many different types of silica can have mean particle diameters in this range. This disclosure includes silica in a list of over 40 different very disparate types of inorganic oxides and over 10 different types of organic fillers. No function or effect of these fillers is described nor are any amounts or proportions mentioned.

In all of the examples of Kawase, the particle sizes of the fine particle additives is greater than about 20 microns (20000 nm) which correspond to the dispersed particles having a mean diameter of 1 to 100 microns (μm) and not corresponding to the finely divided oxides according to the present invention having a particle size between 1 and 50 nm.

Therefore, the disclosure of Kawase alone fails to provide evidence that the presently claimed products would have been *prima facie* obvious.

Accordingly, the rejection of the product claims over Kawase alone, should be withdrawn.

As noted above, the disclosure of Minghetti does not suggest incorporating colloidal metal oxides into the acrylic polymer system.

Therefore, the rejection based on the combined disclosures of Kawase and Minghetti should be withdrawn.

Process claims 9-12

Minghetti does not disclose a process in which a dispersion of a finely divided compound in at least one linking compound is mixed with a polymerizable acrylic monomer or a solution of a polymer in a polymerizable acrylic monomer. Therefore, the Minghetti references fail to present evidence that the claimed method as set forth in claims 9-12 would have been *prima facie* obvious.

According to Minghetti thixotropic or thickening agents, such as fumed silica (Cab-O-Sil) is added directly to the other ingredients (see, e.g., US '552, at col. 4, lines 60-61; col. 6, lines 60-64). Furthermore, since the purpose of this ingredient is to thicken the mixture and

to form a thixotropic composition it is respectfully submitted that it would not have been *prima facie* obvious to first add the thixotropic thickening agent to an at least one linking compound since this could make subsequent mixing with the polymerizable acrylic monomer or solution more difficult.

Of course, as noted above, the disclosure of fumed silica does not make obvious a method using colloidal silica.

Accordingly, reconsideration and withdrawal of the rejection of claims 9-12 as obvious over Minghetti is respectfully requested.

Therefore, all objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Should any issues remain unresolved, the Examiner is encouraged to contact the undersigned attorney for Applicants at the telephone number indicated below in order to expeditiously resolve any remaining issues.

Respectfully submitted,

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Attachments: Referenced articles